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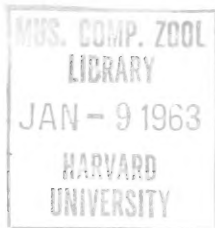
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NEW BIRDS FROM PALAWAN  
AND  
CULION ISLANDS, PHILIPPINES

S. DILLON RIPLEY AND D. S. RABOR

INTRODUCTION

BY D. S. RABOR

The Palawan Expedition of 1962 was sponsored jointly by the Yale Peabody Museum, the Entomology Section of the U. S. Army Medical Research and Development Command of the Office of the Surgeon General, under the auspices of the Bernice P. Bishop Museum, and by Silliman University at Dumaguete City, P. I. Collections were made on Palawan Island March 26 until May 18, 1962, working in southern Palawan from March 26 until April 21, 1962, and in northern Palawan from April 25 until May 18, 1962.

The main collecting localities in southern Palawan included the forested areas in the vicinity of the municipality of Brookes Point, from the sea coast up to about 6,700 feet to the top of the main peak of Mount Mantalingajan. Collecting camps were established at Macagua (sea level to 500 feet), Pinigisan (2,100-2,500 feet), Magtaguimbong (3,600-4,350 feet), and

on the ridge and top of the peak of Mount Mantalingajan itself (5,000-6,700 feet).

The collecting localities in northern Palawan included Sitio Malabusog (sea level to 500 feet) of Barrio Tinitian, municipality of Roxas, and Sitio Tarabanan (sea level to 1,000 feet) of Barrio Concepcion, municipality of Puerto Princesa.

A small collecting party worked on Balabac Island from April 17 until May 2, 1962, and rejoined the main body of the expedition party in northern Palawan on May 5, 1962.

Mr. Max Thompson, Research Fellow of the Bernice P. Bishop Museum, who was a member of the expedition party, headed a small group that carried on additional collecting for the Bishop Museum, on Busuanga and Culion Islands of the Calamianes Group, north of Palawan, from May 20 until June 20, 1962, after the main party had already left for home. His collections of 141 birds from both islands were included in our study.

It is interesting to note that six months earlier, in August and September, 1961, a small collecting party of the Danish "Noona Dan" Expedition, together with two Filipino collectors from the Philippine National Museum, worked in the same collecting localities where we collected later on, with the exception of the ridge and top of the main peak of Mount Mantalingajan itself, which they failed to reach. Our collecting party made camps on the very camping sites of the Danish Expedition collectors in the lower elevations of the Mount Mantalingajan Range and even employed the same head mountain guide for the work in the highlands of Mount Mantalingajan.

Salomonsen (1961, Dansk. Ornith. Foren. Tidsskr., vol. 55, p. 219-221; 1962, vol. 56, p. 129-134) reported and described one new species of tree-habbler, *Stachyris hypogrammica*, and two new subspecies, a mountain tailor-bird, *Orthotomus cucullatus viridicollis* and a mountain leaf-warbler, *Phylloscopus trivirgatus peterseni*, from the collections made by the "Noona Dan" collectors in southern Palawan.

Salomonsen reported six forms of true mountain birds which were taken by the "Noona Dan" collectors, which included the following:

1. *Zosterops montana*
2. *Muscicapa westermanni*
3. *Scicercus montis*
4. *Phylloscopus trivirgatus*
5. *Orthotomus cucullatus*
6. *Stachyris hypogrammica*

Our Palawan Expedition Party secured very good series of most of the above mentioned mountain birds, except *Scicercus montis*, of which only 5 specimens were taken by us. In addition, two more true mountain birds were collected by our party, increasing the list of true mountain birds from Palawan to 8. These forms are *Brachypteryx montana* and *Cettia Montana*.

We are reporting six new subspecies of birds from our recent collections on Palawan, most of them from the highlands of southern Palawan in the Mount Mantalingajan localities, and from the Calamians. It is very possible that the highlands of northern Palawan, notably in the localities of Cleopatra's Needle, the high peak which dominates this area may still yield additional forms distinct from those that we have collected in the Mount Mantalingajan localities of southern Palawan. The highlands of northern Palawan remain as still another largely unworked locality.

We are indebted to the authorities of the American Museum of Natural History and of the Chicago Natural History Museum for the use of some of the comparative materials in our present study.

D. S. Rabor acknowledges his indebtedness to the Frank M. Chapman Memorial Fund of the American Museum of Natural History, to the Entomology Section of the U. S. Army Medical Research and Development command of the Office of the Surgeon General, and to the Yale Peabody Museum, for the research grants, which enabled him to come to the United

States to study and prepare the report on the present bird collections from Palawan, Balabac, and the Calamian Islands of Culion and Busuanga, in collaboration with Dr. Ripley.

#### NEW SUBSPECIES FROM PALAWAN

BY

S. DILLON RIPLEY AND D. S. RABOR

#### ***Ninox scutulata palawanensis***, subsp. nov.

TYPE: Yale Peabody Museum No. 73202 from Tarabanan, Concepcion, Puerto Princesa, Palawan Island, Philippines, sea level to 1,000 feet elevation. Adult male collected May 8, 1962 by D. S. Rabor.

DIAGNOSIS: Similar to *N. sc. randi* of most of the larger Philippine islands in the reddish chocolate-brown upper- and underparts, but decidedly smaller. Slightly smaller than *N. sc. totogo* of Botel Tabago but lighter brown on upperparts with decidedly more reddish wash; light parts on the streaked individual feathers of underparts purer white with much less buff, and brown streaks darker; blackish tail bands similar in width, number and location on tail feathers, but brown bands in *palawanensis* tinged more ashy. Closest to *Ninox scutulata borneensis* in size, but upperparts slightly darker brown with more red wash; blackish tail bands much narrower, more in number and darker, and the brown bands tinged more ashy.

MEASUREMENTS: *N. sc. totogo* from A'Oshima, Loo Choo Islands, and Okinawa: Wing ♂ (2) 214, 210, ♀ (5) 204-212.5 (av. 208.5); tail ♂ (2) 119, 115, ♀ (5) 111.5-118 (av. 115.6); culmen from base ♂ (2) 24.5, 23.5, ♀ (4) 23.5-25 (av. 24.5); tarsus ♂ (2) 26, 24.5, ♀ (5) 25-26.5 (av. 26 mm). *N. sc. borneensis* from Borneo: Wing ♂ (4) 176-184.5 (av. 179.6), ♀ (2) 182.5, 176, sex ? (4) 183-187.5 (av. 185.6) tail ♂ (4) 98-102 (av. 99.5), ♀ (2) 96.5, 96, sex ? (4) 94-104 (av. 100.1); culmen from base ♂ (4) 21.5-22.5 (av. 22.1), ♀ (2) 22, 22.5, sex ? (4) 21.5-24 (av. 22.2); tarsus ♂ (4)

23-25 (av. 24.4), ♀ (2) 24.5, 23.5, sex ? (4) 22.5-24 (av. 23.6 mm). *N. sc. palawanensis* from Palawan Island. Wing ♂ 195.5; tail 108; culmen from base 23.5, tarsus 25 mm.

RANGE: Palawan Island.

REMARKS: The three races *totogo*, *borneensis* and *palawanensis* are lightly differentiated from one another, based on plumage coloration. In size, however, *palawanensis* is intermediate between *totogo* and *borneensis*.

***Pitta erythrogaster thompsoni*, subsp. nov.**

TYPE: Yale Peabody Museum No. 73203 from 6.5 km southwest Culion, Culion Island, Philippines. Adult male collected June 7, 1962 by Max C. Thompson. Original field no. BBM-PI 3290, Bernice P. Bishop Museum.

DIAGNOSIS: Closest to *P. e. propinqua* of Palawan and Balabac Islands but back, rump, tail and scapulars pale blue, not cobalt. Differs from *P. e. erythrogaster* in the much paler blue of back, rump, tail and scapulars, and in the much narrower dull green band on mantle, as in *propinqua*.

MEASUREMENTS: *P. e. propinqua* from Palawan: Wing ♂ (3) 96-100 (av. 98); tail ♂ (3) 34-36.5 (av. 34.8); culmen from base ♂ (3) 13.5-14.5 (av. 14); tarsus ♂ (3) 32-33.5 (av. 32.8 mm); weight ♂ (3) 50.7-53.4 (av. 51.2 grams).

*P. e. erythrogaster* from Luzon: Wing ♂ (4) 96.5-99 (av. 97.5), ♀ 99.5; tail ♂ (4) 32-37.5 (av. 35.1), ♀ 34.5; culmen from base ♂ (2) 23.5, 23.5, ♀ 23; tarsus ♂ (4) 33.5-35.5 (av. 34.2), ♀ 35 mm; weight ♂ (4) 56.2-69 (av. 63.3), ♀ 55.2 g.

*P. e. erythrogaster* from Mindanao: Wing ♂ (2) 98.5, 100.5, ♀ (2) 95.5, 98; tail ♂ (2) 36.5, 33.5, ♀ (2) 32, 34; culmen from base ♂ (2) 23.5, 24, ♀ 22; tarsus ♂ (2) 35.5, 35.5, ♀ (2) 34, 34.5 mm.

*P. e. erythrogaster* from Negros: Wing ♂ (3) 98-100.5 (av. 99.5), ♀ 99; tail ♂ (3) 33-35.5 (av. 34.3), ♀ 32; culmen from base ♂ (3) 22-23.5 (22.6), ♀ 23; tarsus ♂ (3) 33-33.5 (av. 33.3), ♀ 33.5 mm.

*P. e. erythrogaster* from Samar: Wing (sex?) 94.5; tail 35.5; tarsus 33 mm.

*P. e. erythrogaster* from Bongao: Wing ♂ 95; tail 36.5; culmen from base 22; tarsus 35 mm.

*P.e. thompsoni* from Culion: Wing ♂ (2) 94.5, 94; tail 35, 36; culmen from base 22.5, 23.5; tarsus 33, 34.5 mm.

RANGE: Culion Island.

REMARKS: The Negros population of *P. e. erythrogaster* comes closest to *P. e. thompsoni* in the intensity of the blue color on the back, rump, tail and scapulars, but the Culion form is still paler on these parts. Also, the dull green band on the mantle in the Negros birds is much wider as is characteristic of *erythrogaster*.

We take great pleasure in naming this form after Mr. Max C. Thompson, Research Fellow of the Bernice P. Bishop Museum, the young collector who was a great help in the field work in Palawan, Balabac, and the Calamians.

### ***Brachypteryx montana sillimani*, subsp. nov.**

TYPE: Yale Peabody Museum No. 73204, from Magtaguimbong, Mount Mantalingajan, 3,600-4,350 feet, Palawan Island, Philippines. Adult male collected April 11, 1962, by D. S. Rabor.

DIAGNOSIS: Closest to *B. m. poliolegno* of northern (northwestern) Luzon and Mindoro, and *B. m. andersoni* of southern Luzon, but differs in the following characteristics: a) Male averages much brighter and richer slate-blue upper- and underparts, with much less wash of gray on abdomen; b) female with much duller rusty brown undertail coverts; c) longer culmen.



MEASUREMENTS: *B. m. poliogyna* from northern Luzon: Wing, ♂ (3), 65-68.5 (av. 66.6); ♀ (2) 68.5, 62.5; tail, ♂ (3) 45.5-47 (av. 46.3), ♀ (2) 46, 40; culmen from base, ♂ (3) 15.5; ♀ (2) 16.5, 15.5; culmen from anterior margin of nostril, ♂ (3) 8.5, ♀ (2) 9, 8.5; tarsus, ♂ (3) 26-27.5 (26.5), ♀ (2) 28, 27.

*B. m. poliogyna* from Mindoro: Wing, ♂ (5) 65.5-67.5 (av. 66.7), ♀ (3) 60.5-64 (av. 62.3); tail, ♂ (5) 45-46.5 (av. 46), ♀ (3) 41-43 (av. 42); culmen from base, ♂ (5) 15.5-17 (av. 16.2), ♀ (3) 15.5-17 (av. 16.3); culmen from anterior margin of nostril, ♂ (5) 8.5-9 (av. 8.9), ♀ (3) 8.5-9.5 (9); tarsus, ♂ (5) 28-29.5 (av. 28.5), ♀ (3) 26-29 (av. 27.6).

*B. m. andersoni* from southern Luzon: Wing, ♂ (2) 71, 66, ♀ (2) 63.5; tail, ♂ (2) 45.5, 47, ♀ (2) 42.5, 43; culmen from base, ♂ (2) 16.5, 16, ♀ (2) 16.5, 16; culmen from anterior margin of nostril, ♂ (2) 9, 8.5, ♀ (2) 9; tarsus, ♂ (2) 28.5, ♀ (2) 28, 27.

*B. m. sillimani* from southern Palawan: Wing, ♂ (3) 68-70.5 (av. 69), ♀ (3) 63-68 (av. 66); tail, ♂ (3) 46.5-48 (av. 47.3), ♀ (3) 42-45 (av. 42.3); culmen from base, ♂ (3) 17-17.5 (av. 17.3), ♀ (3) 17-18 (av. 17.5); culmen from anterior margin of nostril, ♂ (3) 9-9.5 (av. 9.3), ♀ (3) 9-10 (av. 9.5); tarsus, ♂ (3) 27-29 (av. 28.1), ♀ (3) 27-28 (av. 27.6).

RANGE: The highlands of southern Palawan as far as known.

REMARKS: In the male, the Palawan form is the brightest and richest in coloration of plumage, with the least powdery gray wash on the slate-blue color, both on the upper- and underparts, when compared to males of other races of the species in the Philippines, Borneo, and Sumatra. The female of this race also averages brighter and richer slate-blue on the upperparts than those of the other races.

The Palawan birds resemble most closely those of northern Luzon

The species is recorded for the first time on Palawan Island

and is a new addition to the recently known mountain bird fauna of this island.

The various races of the species within the geographic unit of the Philippines include:

*B. m. polioygyna*—northern (northwestern) Luzon,

*B. m. andersoni*—southern Luzon,

*B. m. brunneiceps*—Negros,

*B. m. mindanensis*—Mt. Apo, Mindanao,

*B. m. malindangensis*—Mt. Malindang, Mindanao,

*B. m. sillimani*—southern Palawan.

Some of the larger islands with highlands attaining elevations of 3,000 feet or more may have representatives of this species that remain to be discovered. In southern Luzon, in the Mount Isarog localities, the species ranges as low as 2,200 feet along shaded banks of mountain streams.

The new race is named after Dr. Robert B. Silliman, Vice-President of Silliman University, Dumaguete City, Negros Oriental, Philippines, for his interest in and active stimulation of biological research in the university.

***Muscicapa westermanni palawanensis*, subsp. nov.**

TYPE: Yale Peabody Museum No. 73205 from Mount Mantalingajan Peak, 5,500-6,000 feet, Palawan Island, Philippines. Adult female, collected April 14, 1962 by D. S. Rabor.

DIAGNOSIS: Like *M. w. rabori* and *M. w. westermanni* but differs in: a) bill decidedly more robust than that of either, as shown by the comparative index derived from the ratio between length of culmen from base and width of maxilla at level of frontal feathering; b) in the female, the upperparts being a purer, darker slate gray, and with the tawny-olive wash on the back and rump still further reduced; c) longer wing and tail.

MEASUREMENTS: *M. w. palawanensis*: wing ♂ (5) 58.5-61 (av. 59.5), ♀ (1) 55.5; tail ♂ (5) 42.5-44 (av. 43.3); ♀ (1) 40; culmen from base ♂ (5) 13-13.5 (av. 13.3), ♀ (1) 13; width of bill at level of frontal feathering ♂ (5) 4.6-5.5 (av. 4.9), ♀ (1) 5.1; tarsus ♂ (5) 13.5-14.5 (av. 14 mm).

*M. w. rabori*: wing ♂ (9) 55.5-59.5 (av. 57.9), ♀ (3) 55-57 (av. 56); tail ♂ (9) 39-43 (av. 41.2), ♀ (3) 39-41, (av. 39.8); culmen from base ♂ (9) 12-13.5 (av. 12.8), ♀ (3) 12-13 (av. 12.3); width of bill at level of frontal feathering ♂ (9) 3.8-4.9 (av. 4.4), ♀ (3) 4-4.4 (av. 4.2); tarsus ♂ (9) 14-15.5 (av. 14.6), ♀ (3) 13.5-15 (av. 14.3 mm).

*M. w. westermanni*: wing ♂ (16) 55-57.5 (av. 56.2), ♀ (10) 52.5-58.5 (av. 54.7); tail ♂ (16) 39-41.5 (av. 40), ♀ (10) 37-39.5 (38.5); culmen from base ♂ (16) 12-13.3 (av. 12.5), ♀ (10) 12-13 (av. 12.5); width of bill at level of frontal feathering ♂ (16) 4-4.6 (av. 4.3), ♀ (10) 4-4.6 (av. 4.4); tarsus ♂ (16) 13.5-15 (av. 13.9), ♀ (10) 14-14.5 (av. 14.2 mm).

RANGE: Mountains of southern Palawan Island, Philippines, as far as known.

REMARKS: The Palawan males are indistinguishable from the males of the various Philippine races of the species, as is characteristic of this particular species if based on plumage coloration and color pattern.

The main bases for naming the Palawan population are: a) the decidedly more robust bill in both sexes compared to that of any other race of this species; b) the distinctive plumage coloration of the female; and c) the longer wing and tail lengths as compared to that of the other races in the Philippines. In order to arrive at comparative figures which determine the comparative degrees of heaviness of the bill in the various Philippine races, we are using the ratio of the length of culmen from base to the width of maxilla at level of frontal feathering. We call this figure the "index of bill heaviness." The lower this figure is, the more heavy or robust the bill. We included the figure for both sexes to arrive at indices which will give a general idea as to the average heaviness of the bill in either sex of a particular race.

The indices for bill heaviness of the races in the Philippines are:

*M. w. palawanensis*—2.70 (5 ♂, 1 ♀).

*M. w. westermanni*—2.87 (16 ♂, 10 ♀).

*M. w. rabori*—2.91 (9 ♂, 3 ♀).

***Cettia montana palawana***, subsp. nov.

TYPE: ♂ ad (Y.P.M. No. 54238), collected April 12, 1962, by D. S. Rabor on Mount Mantalingajan, 6,700 feet, Palawan Island, Philippines.

DIAGNOSIS: This form differs strikingly in color from the other subspecies of *Cettia montana* from India east to Laos and south to Sumatra and Borneo. In olivaceous brownish tone this population is paler than *sepiaria* and more olive, less warm brown than *oreophila*, but altogether darker, more suffused than mainland birds. Olive yellow is on the throat and abdomen with warm olive brown on the flanks and invading the breast in a light wash in some specimens forming an incomplete breast band. These yellowish throat feathers tend to be streaked along the shaft and adjacent areas of the vanes with dull ashy, difficult to see on account of the make-up of the skins. This yellowish tone of the underparts is strikingly different from all other forms of *Cettia montana*. Like other Palawan animals, however, this warbler points up the South-east Asian affinities of this island.

MEASUREMENTS: Type: wing, 54.5; tail, 56; culmen from base, 15.5; culmen from anterior margin of nostril, 8.5; tarsus, 22 mm. Seven other males measure: wing, 54.5-57.5 (av. 55.8); tail, 55.5-60 (av. 57.6); culmen from base, 14.5-15.5 (av. 15.1); culmen from anterior margin of nostril, 8-8.5 (av. 8.4); tarsus, 20-22.5 (av. 21.6). Six females measure: wing, 51-55.5 (av. 52.4); tail, 47.5-54 (av. 51.5); culmen from base, 13.5-16 (av. 14.9); culmen from anterior margin of nostril, 8-8.5 (av. 8.4); tarsus, 21-22 (av. 21.3).

RANGE: Mountains of Palawan Island, Philippines.

REMARKS: Stays singly or in pairs among the dense tangles and low stunted growth on the mountain ridges, always actively hopping from branch to branch, all the while giving out its very characteristic short note. Frequently the course of the bird may be followed by the sound of these notes, even though the bird itself may not be visible among the dense growth.

The species is recorded for the first time on Palawan, and in the Philippines, as a geographical unit and is a new addition to the recently known mountain birds of this island.

***Lonchura leucogastra palawana*, subsp. nov.**

TYPE: Yale Peabody Museum No. 73206 from Macagua, Brooke's Point, sea level to 250 feet, Palawan Island, Philippines. Adult male, collected April 3, 1962 by D. S. Rabor.

DIAGNOSIS: Closest to *L. l. manucli* in the deep chocolate brown on chest becoming blackish brown to almost black on throat and chin, but differs in: a) having the deep chocolate brown on the chest, and the blackish brown or black on the neck, throat and chin occupying a decidedly much larger area up the sides of the neck and face; b) having a smaller bill.

MEASUREMENTS: *L. l. palawanas*: Wing ♂ (14) 48.5-51.5 (av. 50.3), ♀ (14) 49-52.5 (av. 49.9); tail ♂ (14) 33-36.5, ♀ (14) 31.5-37.5 (av. 35.4); length of culmen ♂ (14) 11.5-13 (av. 12.4), ♀ (14) 11-13 (av. 12); greatest width of culmen ♂ (14) 7.5-8 (av. 7.5), ♀ (14) 7-7.5 (av. 7.4); bill index ♂ (14) 19-20.5 (av. 19.2), ♀ (14) 18.5-20.5 (av. 19.5); tarsus ♂ (14) 12.5-13.5 (av. 13), ♀ (14) 12-13.5 (av. 13 mm).

*L. l. leucogastra*: Wing ♂ (7) 47.5-50 (av. 49.2), ♀ 50.5; tail ♂ (7) 27-35.5 (av. 33), ♀ 33; length of culmen ♂ (7) 10.5-12 (av. 11.6), ♀ 12; greatest width of culmen ♂ (7) 6.5-7 (av. 6.7), ♀ 6.5; bill index ♂ (7) 17-19 (av. 18.3), ♀ 18.5; tarsus ♂ (7) 12.5-13.5 (av. 13), ♂ 13.5 mm.

*L. l. castanonota*: Wing ♂ (2) 49.5, 50.5; ♀ (2) 49; tail ♂ (2) 33.5, 34, ♀ (2) 33.5, 36.5; length of culmen ♂ (2) 11.5, 12, ♀ (2) 12, 12.5; greatest width of culmen ♂ (2) 7, ♀ (2) 7, 7.5; bill index ♂ (2) 19.5, 20, ♀ (2) 20, 20.5; tarsus ♂ (2) 12.5, 13, ♀ (2) 13 mm.

*L. l. everetti*: Wing ♂ (9) 50-54 (av. 51.3), ♀ (7) 50-52 (av. 50.6); tail ♂ (9) 33-37.5 (av. 35.3), ♀ (7) 34-37.5

(av. 36.4); length of culmen ♂ (9) 12-12.5 (av. 12.3), ♀ (7) 11.5-13 (av. 12.3); greatest width of culmen ♂ (7) 7.5-8.5 (8), ♀ (6) 7.5-8.5 (av. 7.9); bill index ♂ (7) 19.5-21 (av. 20.3), ♀ (6) 19.5-20.5 (av. 20.3); tarsus ♂ (9) 12-13.5 (av. 13.1), ♀ (7) 12-13.5 (av. 13 mm).

*L. l. manuli*: Wing ♂ (7) 50.5-55 (av. 51.9), ♀ (4) 48-54 (av. 51.6); tail ♂ (7) 33-37.5 (av. 36.2), ♀ (4) 32.5-35 (av. 33.8); length of culmen ♂ (7) 12.5-13 (av. 12.8), ♀ (4) 12.5-13.5 (av. 13); greatest width of culmen ♂ (7) 8-8.5 (av. 8), ♀ (4) 7.5-8.5 (av. 8); bill index ♂ (7) 20.5-21.5 (av. 20.4), ♀ (4) 20-22 (av. 21.1); tarsus ♂ (7) 12.5-13.5 (av. 13), ♀ (4) 13-13.5 (av. 13.4 mm).

*L. l. smythiesi*: Wing ♂ 51.5, ♀ 50.5; tail ♂ 31, ♀ 33; length of culmen ♂ 12, ♀ 13; greatest width of culmen ♂ 7.5, 8; bill index ♂ 19.5, ♀ 21; tarsus 13, ♀ 13.5 mm.

We follow Parkes' measurement of the bill index, the index derived from the sum of the greatest length of culmen plus its greatest width.

RANGE: Palawan, Busuanga and Culion as far as known in the Philippines; the highlands of eastern and northern Borneo.

REMARKS: Parkes (1958, Proc. U. S. Nat. Museum, vol. 108, no. 3402, p. 279-284) reviewed the taxonomy and nomenclature of this species and described two new races, bringing the total number of races that he recognized for the species to five. He gave the ranges of these various races as:

*L. l. leucogastra*—Thailand, Malay Peninsula, and Sumatra.

*L. l. castanonota*—Southern Borneo.

*L. l. everetti*—Luzon and the adjacent islands of Mindoro, Catanduanes, and Polillo, in the Philippines.

*L. l. manuli*—Southern half of the Philippine Archipelago and the highlands of northern Borneo, eastern Borneo, and Sarawak.

*L. l. smythiesi*—Known only from the vicinity of Kuching, Sarawak, Borneo.

Parkes had some Palawan specimens in his studies of this species and he included them with the variable *manueli*. In this connection he commented that "Although, as mentioned above, *manueli* is quite constant in its characters for a bird whose range encompasses so many islands, there is a certain amount of intraracial variation present. The most noticeable of these variations is a tendency for Palawan specimens to have smaller bills than those of the other islands within the range of *manueli* as here defined."

Our material, considering only the fully adult and properly sexed specimens, consists of 8 (7 ♂, 1 ♀) *L. l. leucogastra*, 4 (2 ♂, 2 ♀) *castanonota*, 16 (9 ♂, 7 ♀) *everetti*, 11 (7 ♂, 4 ♀) *manueli*, 2 (1 ♂, 1 ♀) *smythiesi*, and 28 (14 ♂, 14 ♀) *palawana*. Our material of *palawana* includes 23 birds from Palawan, two from Busuanga, one from Culion, and two from northern Borneo. In addition, we also examined but did not include the measurements, of two adult Palawan specimens of undetermined sex.

In studying the various races of *L. leucogastra*, especially those which are found in the Philippines, we made the following observations:

a) *Age of birds and their plumage.* Immature and subadult birds of the three Philippine races are indistinguishable from one another. Only fully adult birds show to the best advantage the characters which are of any value in differentiating the various races.

b) *Color of upperparts.* *L. l. castanonota* differs distinctively from the other races in having the deep rufous chestnut upperparts. The other races differ very slightly from one another in the general colors of the upperparts in being brown streaked with white on the back and crown. There is a tendency, however, toward a very gradual deepening in the intensity of the brown upperparts in the various races (excluding *castanonota*), starting from *everetti* as the lightest and ending with *leucogastra*, in the order *everetti* → *smythiesi* → *manueli* → *palawana* → *leucogastra*.

The degree of development of the white shaft streaks on the feathers of the back up to the crown is a very variable charac-

ter, even within the same race, and depends much on the age of the individual bird and the freshness of its plumage. Within the same population, in any one race, there are individuals where these white shaft streaks have totally disappeared from the crown, giving this part a uniform color. These white shaft streaks are not as well pronounced on the back in some birds and yet are very distinct in others of the same race and from the same population of a particular locality.

c) *Upper tail coverts*. There is a gradual increase in the degree of intensification from the original plain brown upper tail coverts, which hardly contrast from the plain brown color on the rump and lower back in *smythiesi*, to deeper brown, blackish brown, blackish, and finally to black in *castanonota*. Among the races there is also a tendency for this color on the upper tail coverts gradually to invade the rump, thus increasing the area that it occupies. We summarize below the condition of the upper tail coverts in the various races:

- L. l. smythiesi*—plain brown, almost with no contrast to the rest of the rump and back.
- L. l. everetti*—plain brown with tendency to be slightly more intense than the rump and lower back, thus beginning to show a contrast.
- L. l. manueli*—darker brown, contrasting distinctly with the rump and the rest of back, but covers only a small area of the upper tail coverts.
- L. l. palawana*—blackish brown contrasting distinctly with the rump and rest of back, occupying a larger area on the upper tail coverts than in *manueli*, and in some specimens already beginning to show the tendency to invade the rump.
- L. l. leucogastra*—deeper blackish brown to almost black, this color having invaded the greater part of the rump or all of it, the whole area contrasting distinctly with the rest of back.
- L. l. castanonota*—very intense blackish brown to black, occupying the upper tail coverts and the rump, and contrasting distinctly with the rest of back.



d) *Anterior underparts.*

- L. l. smythiesi*—chocolate brown, becoming deeper and richer on throat and chin.
- L. l. everetti*—chocolate brown, becoming deeper and richer on throat and chin, as in *smythiesi*.
- L. l. manuli*—deep chocolate brown on the chest, becoming blackish brown on throat and chin, these colored areas being separated by a wide band of light brown on the sides of the chest and neck from the upperparts.
- L. l. palawana*—as in *manuli*, deep chocolate brown on the chest becoming blackish brown to black on throat and chin, but these colored areas occupying a decidedly much larger portion of the chest, neck, throat and chin, so that the plain brown band separating them from the upperparts is very much reduced.
- L. l. leucogastra*—the entire anterior underparts very intense blackish brown to black, this color extending up the sides of the chest, neck, throat and chin, coming in direct contact with the much lighter brown of the upperparts.
- L. l. castanonota*—as in *leucogastra*, with the tendency to be black instead of intense blackish brown.

The newly-described race is intermediate between *manuli* and *leucogastra* in color pattern. When the various races (excluding *castanonota*, because it is easily differentiated from the others) are arranged in the order of increasing intensity of the colors of the upperparts and underparts, the following arrangement results:

*smythiesi* → *everetti* → *manuli* → *palawana* → *leucogastra*.

We did not have the opportunity to examine specimens from the Sulu Archipelago but Parkes found the two birds that he examined to be small-billed, a condition similar to the

Palawan race. From this character and from geographic consideration we are inclined to include the Sulu Archipelago birds with the race *palawana*. The Philippine races of *L. leucogastra* have the following ranges:

*L. l. everetti*—Luzon and the adjacent islands of Mindoro, Catanduanes, and Polillo.

*L. l. manueli*—Central and southern Philippines.

*L. l. palawana*—Palawan, Busuanga, Culion, Sulu Archipelago.



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